UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,070	11/20/2003	Alex Chen	TUC920030128US1	2275

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KONRAD RAYNES & VICTOR, LLP. ATTN: IBM37 315 SOUTH BEVERLY DRIVE, SUITE 210 BEVERLY HILLS, CA 90212	TANG, KENNETH

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2195	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
	10/719,070	CHEN ET AL.
Office Action Summary	Examiner	Art Unit	
	Kenneth Tang	2195	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>20 November 2003</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-30</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-7,9,10,12-18,20,21 and 23-29</u> is/are rejected.

7)☒ Claim(s) <u>8,11,19,22 and 30</u> is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>20 November 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-30 are presented for examination.

Claim Objections

2.   Claims 2, 4, 13, 15, 24, and 26 are objected to because of the following informalities:

a.   In line 3 of claims 2, 4, 13, 15, 24, and 26, the term "in enqueued" should be

changed to "is enqueued" to correct the grammatical error. Appropriate correction is

required.

Information Disclosure Statement

The information disclosure statement filed 11/20/03 fails to comply with 37 CFR

1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or

other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent

application publications listed in a section separately from citations of other documents; (3) the

application number of the application in which the information disclosure statement is being

submitted on each page of the list; (4) a column that provides a blank space next to each

document to be considered, for the examiner's initials; and (5) a heading that clearly indicates

that the list is an information disclosure statement. The information disclosure statement has

been placed in the application file, but the information referred to therein has not been

considered.

The information disclosure statement filed on 11/20/03 does not fully comply with the

requirements of 37 CFR 1.98(b) because: because it fails to provide a listing of all patents,

publications, applications or other information submitted for consideration by the Office. Since

the submission appears to be *bona fide*, applicant is given **ONE (1) MONTH** from the date of

this notice to supply the above mentioned omissions or corrections in the information disclosure

statement. NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER

37 CFR 1.136(a) OR (b). Failure to timely comply with this notice will result in the above

mentioned information disclosure statement being placed in the application file with the

noncomplying information **not** being considered. See 37 CFR 1.97(i).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3.   Claims 12-22 are directed to non-statutory subject matter. In claim 12, the claim is

directed to an article of manufacture that may comprise a transmission media, such as a network

transmission line, wireless transmission media, signals propagating through space, radio waves,

infrared signals, etc. (see page 20, lines 9-12 of the Specification). In this case of the article of

manufacture containing signals, it fails to fall under one of the four statutory categories of

inventions. 35 U.S.C. 101 defines four categories of inventions that Congress deemed to be the

appropriate subject matter of a patent: processes, machines, manufactures and compositions of

matter. The latter three categories define "things" or "products" while the first category defines

"actions" (i.e., inventions that consist of a series of steps or acts to be performed). See 35 U.S.C.

100(b) ("The term process' means process, art, or method, and includes a new use of a known

process, machine, manufacture, composition of matter, or material."). To overcome the

rejection, it is suggested and recommended by the Examiner to amend the article of manufacture

to be a computer readable storage medium as it is separate from the transmission media that

contains the signals (see Specification, page 20, lines 2-12).

4.   Furthermore, claims 13-22 are also rejected as being dependent upon rejected

independent claim 12.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   **Claims 1, 12, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over**

Schober (US 7,237,016 B1) in view of DeKoning et al. (hereinafter DeKoning) (US 6,457,098

B1).

6.   As to claim 1, Schober teaches a method comprising:

attempting in a first attempt (resource request) to acquire a first resource for a task

requiring both a first resource and a second resource (an arbiter arbitrates resource requests for

resources) (col. 2, lines 42-60);

enqueuing said task on a first queue if said first attempt to acquire said first resource for said task fails (place the resource request within a first queue associated with a first resource if the first resource fails because it is unavailable) (col. 2, lines 50-52);

attempting in a first attempt to acquire said second resource for said task (col. 2, lines 52-54);

enqueing said task on a second queue if said first attempt to acquire said second resource for said task fails (place the resource request within a second queue associated with a second resource if the second resource is unavailable) (col. 2, lines 52-54); and

7.   In summary of the above citations, Schober teaches a first resource having a first queue and a second resource having a second queue with an arbiter that manages the resource request for attempts. The task is enqueued on the first queue if the first resource is unavailable and thus fails to acquire it. Similarly, the task is enqueued on the second queue if the second resource is unavailable and thus fails to acquire it.

8.   Schober does teach issuing a grant upon availability of both the first and second resources such that it waits until there is positive determination for each resource availability checks and should any resource be unavailable, the request is returned (col. 23, lines 27-28, col. 15, lines 16-22). However, Schober is silent in acquiring in a second attempt said first resource for said task and releasing said first resource for said task if said first attempt to acquire said second resource for said task fails.

9.   DeKoning teaches coordination between a primary controller 118.1 (first resource) and a

secondary controller 118.2 (second resource) with many different types of scenarios of

interactions. One scenario taught in particular provides recovery techniques involves a primary

controller determining that a failure has occurred with the secondary controller, and if so, the

primary controller forces the release of the resource via a semaphore (col. 14, lines 58-66). If the

first resource is successfully acquired but the second resource has failed, the first resource

performs the release and the system can start over again with another attempt until the first

resource is successfully acquired, followed by successfully acquiring the second resource.

10.   It is inherent that after the first resource is acquired, the task in the first queue (acting as a

wait queue) needs to be removed because it is no longer "failed" or waiting to be acquired.

11.   Schober and DeKoning are analogous art because they are both relate to coordination

between storage subsystems. Schober teaches that the physical properties of the system can

support many systems including storage subsystems (col. 2, lines 10-22). Therefore, the

resources of Schober's system (first resource, second resource, etc.) can be applied to storage

subsystems, and particularly, Schober's first resource and second resource can be referred to

DeKoning's primary controller and secondary controller, respectively.   .

12.   One of ordinary skill in the art would have known to modify the resources of Schober

such that it would allow for acquiring in a second attempt said first resource (primary controller)

for said task and releasing said first resource for said task if said first attempt to acquire said

second resource (secondary controller) for said task fails, as taught in DeKoning.

13.   The suggestion/motivation for doing so would have been to provide the predicted result

of providing standard error check and recovery techniques for enhancing the message exchange

protocol between the first and second resources (col. 14, lines 58-67 through col. 15, lines 1-3).

14.   Therefore, it would have been obvious to one of ordinary skill in the art at the time the

invention was made to combine Schober and DeKoning to obtain the invention of claim 1.

15.   As to claim 12, it is rejected for the same reasons as stated in the rejection of claim 1. In

addition, Schober teaches the an article of manufacture containing the operations for performing

the method (col. 22, lines 4-16).

16.   As to claim 23, it is rejected for the same reasons as stated in the rejection of claim 1. In

addition, Schober teaches the structural components for performing the method (see Fig. 2A, col.

4, lines 47-67).

17.   **Claims 2-7, 9-10, 13-18, 20-21, and 24-29 are rejected under 35 U.S.C. 103(a) as**

being unpatentable over Schober (US 7,237,016 B1) in view of DeKoning et al. (hereinafter

DeKoning) (US 6,457,098 B1), and further in view of Ben-Shachar et al. (hereinafter Ben-

Schachar) (US 2001/0010053 A1).

18.   As to claim 2, Schober teaches using a priority scheme for the resource allocation (col. 8, lines 27-40). The first resource fails when a second task occurs because it has already moved on to the second task. Schober and DeKoning are silent in teaching that tasks having the same priority be grouped/contained in the same queue. However, Ben-Shachar teaches that a wait queue 430 may include three internal queues, one for each priority level, high priority 432, medium priority 434, and low priority 436. Similarly, the idle queue 438 may include three internal queues, one for each priority level, high priority 440, medium priority 442, and low priority 444 (see paragraph [0155]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the queues for the resources of Schober in view of DeKoning such that it would include the three internal queues of high priority, medium priority and low priority. The suggestion/motivation for doing so would have been to provide the predicted result of ensuring efficient workload balancing ([0054], [0070]). Therefore, it would have been obvious to combine Schober, DeKoning and Ben-Shachar to obtain the invention of claim 2.

19.   As to claim 3, Schober, DeKoning, and Ben-Shachar teaches the method of claim 2 wherein said first task has a first priority, said method further comprising:

        attempting in a first attempt to acquire said first resource for a third task requiring said first resource and having a second priority higher (medium priority) than said first priority (low priority) (Ben-Shachar, [0155]), and

enqueuing said third task on a third queue (medium priority queue) (Ben-Shachar, [0155]) if said first attempt to acquire said first resource for said third task fails (Schober, col. 2, lines 42-60, see DeKoning, col. 14, lines 58-66, and see explanation of rejection of claim 1); and

wherein said first attempt to acquire said first resource for said first task fails when said third task having said second priority (medium priority) is in enqueued on said third queue (medium priority queue) (Ben-Shachar, [0155]).

20.   As to claim 4, Schober (col. 2, lines 42-60), DeKoning (col. 14, lines 58-66), and Ben-Shachar ([0155]) teaches the method of claim 3 wherein said first task has a first priority, and wherein said first attempt to acquire said second resource fails when a fourth task having said first priority (low priority) in enqueued on said second queue (low priority queue of the second resource).

21.   As to claim 5, Schober, DeKoning, and Ben-Shachar teaches the method of claim 4 wherein said first task has a first priority, said method further comprising:

attempting in a first attempt to acquire said second resource for a fifth task requiring said second resource and having a second priority (medium priority) (Ben-Shachar, [0155]) higher than said first priority (low priority) ([0155]) (Ben-Shachar, [0155]), and

enqueuing said fifth task (having a medium priority) (Ben-Shachar, [0155]) on a fourth

queue (medium priority queue) (Ben-Shachar, [0155]) if said first attempt to acquire said second

resource for said fifth task fails (Schober, col. 2, lines 42-60, see DeKoning, col. 14, lines 58-66,

and see explanation of rejection of claim 1); and

wherein said first attempt to acquire said second resource for said first task fails when

said fifth task having said second priority (medium priority) (Ben-Shachar, [0155]) is in

enqueued on said fourth queue (medium priority queue) (Ben-Shachar, [0155]).

22.   As to claim 6, Schober and DeKoning teaches the method of claim 5 further comprising:

acquiring in a third attempt said first resource for said first task (col. 2, lines 50-52 of

Schober);

attempting to acquire in a second attempt said second resource for said first task (col. 2,

lines 52-54 of Schober); and

23.   DeKoning teaches releasing said first resource for said first task if said second attempt to

acquire said second resource for said task fails (col. 14, lines 58-66).

24.   Schober teaches a first resource having a first queue and a second resource having a

second queue with an arbiter that manages the resource request for attempts. The task is

enqueued on the first queue if the first resource is unavailable and thus fails to acquire it.

Similarly, the task is enqueued on the second queue if the second resource is unavailable and

thus fails to acquire it. DeKoning teaches coordination between a primary controller 118.1 (first resource) and a secondary controller 118.2 (second resource) with many different types of scenarios of interactions. One scenario taught in particular provides recovery techniques involves a primary controller determining that a failure has occurred with the secondary controller, and if so, the primary controller forces the release of the resource via a semaphore (col. 14, lines 58-66). If the first resource is successfully acquired but the second resource has failed, the first resource performs the release and the system can start over again (indefinite amount of attempts) with another attempt until the first resource is successfully acquired, followed by successfully acquiring the second resource.

25.   As to claim 7, Schober and Dekoning teaches the method of claim 5 further comprising:

acquiring in a third attempt said first resource for said first task (Schober, col. 2, lines 50-52);

acquiring in a second attempt said second resource for said first task (Schober, col. 2, lines 52-54);

removing said first task from said second queue (because second resource was acquired, no longer failed or on the "wait" queue anymore) (similar reasoning made in the rejection of claim 1); and

dispatching said first task to be completed using said first and second resources (performed by arbiter/resource allocator) (Schober, col. 2, lines 44-50).

26.   Schober teaches a first resource having a first queue and a second resource having a

second queue with an arbiter that manages the resource request for attempts. The task is

enqueued on the first queue if the first resource is unavailable and thus fails to acquire it.

Similarly, the task is enqueued on the second queue if the second resource is unavailable and

thus fails to acquire it. DeKoning teaches coordination between a primary controller 118.1 (first

resource) and a secondary controller 118.2 (second resource) with many different types of

scenarios of interactions. One scenario taught in particular provides recovery techniques

involves a primary controller determining that a failure has occurred with the secondary

controller, and if so, the primary controller forces the release of the resource via a semaphore

(col. 14, lines 58-66). If the first resource is successfully acquired but the second resource has

failed, the first resource performs the release and the system can start over again *(indefinite*

amount of attempts) with another attempt until the first resource is successfully acquired,

followed by successfully acquiring the second resource.

27.   As to claim 9, Schober teaches the method of claim 7 wherein said third attempt is

initiated by the second resource becoming free (as found in the free list 206) (col. 9, line 58).

28.   As to claim 10, Schober teaches the method of claim 7 wherein said third attempt is

initiated by the first resource becoming free (from the free list 206) (col. 9, line 58).

29.   As to claims 13-18 and 20-21, they are rejected for the same reasons as stated in the

rejections of claims 2-7 and 9-10, respectively.

30.   As to claims 24-29, they are rejected for the same reasons as stated in the rejections of

claims 2-7, respectively.

Allowable Subject Matter

31.   Claims 8, 11, 19, 22, and 30 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the limitations of

the base claim and any intervening claims, as well as overcoming the claim objections and any

35 USC 101 rejections set forth in this office action.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure:

- **Kizaki (US 2003/0035142 A1)** discloses a set of wait queues wherein each queue

   represents a priority level (see paragraph [0029] and claim 7).

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kenneth Tang whose telephone number is (571) 272-3772. The

examiner can normally be reached on 8:30AM - 6:00PM, Every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-Ai An can be reached on (571) 272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kenneth Tang
1/2/08